



SEQUENCE LISTING

(1) GENERAL INFORMATION

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(ii) TITLE OF THE INVENTION: HLA Binding Peptides and Their
 Uses

(iii) NUMBER OF SEQUENCES: 163

(iv) CORRESPONDENCE ADDRESS:

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(v) COMPUTER READABLE FORM:

(A) MEDIUM TYPE: Diskette
 (B) COMPUTER: IBM Compatible
 (C) OPERATING SYSTEM: DOS
 (D) SOFTWARE: FastSEQ for Windows Version 2.0

(vi) CURRENT APPLICATION DATA:

(A) APPLICATION NUMBER: 09/017,524
 (B) FILING DATE: 03-FEB-1998
 (C) CLASSIFICATION:

(vii) PRIOR APPLICATION DATA:

(A) APPLICATION NUMBER: US 08/589,107
 (B) FILING DATE: 23-JAN-1996

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(2) INFORMATION FOR SEQ ID NO:1:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:1:

Phe Leu Trp Thr Gln Ser Leu Arg Arg
 1 5

(2) INFORMATION FOR SEQ ID NO:2:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:2:

Gly Ile Pro Tyr Cys Asn Tyr Ser Lys
 1 5

(2) INFORMATION FOR SEQ ID NO:3:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:3:

Gly Val Val Arg Val Trp Asp Val Lys
 1 5

(2) INFORMATION FOR SEQ ID NO:4:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:4:

Met Leu Arg Leu Phe Asp Phe Asn Lys
 1 5

(2) INFORMATION FOR SEQ ID NO:5:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:5:

Arg Thr Arg Asp Ile Tyr Ile Ser Arg
 1 5

(i) INFORMATION FOR SEQ ID NO:6:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:6:

Ser Ala Val Ile Asp Ala Leu Pro Arg
 1 5

(i) INFORMATION FOR SEQ ID NO:7:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:7:

Ser
Val
Leu
Arg
Ala
Val
Leu
Pro
Arg

Ser Val Leu Arg Ala Val Leu Pro Arg
 1 5

(i) INFORMATION FOR SEQ ID NO:8:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:8:

Val Thr Phe Leu Leu Cys Gly Arg
 1 5

(i) INFORMATION FOR SEQ ID NO:9:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:9:

Ala Met Ser Cys Asp Phe Asn Gly Gly Lys
1 5 10

(2) INFORMATION FOR SEQ ID NO:10:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:10:

Gly Ser Tyr Ile Ala Leu Asp Ser Gly Arg
1 5 10

(2) INFORMATION FOR SEQ ID NO:11:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:11:

Lys Ser Phe Leu Trp Thr Gln Ser Leu Arg
1 5 10

(2) INFORMATION FOR SEQ ID NO:12:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:12:

Leu Thr Tyr Ser Gln Leu Met Thr Leu Lys
1 5 10

(2) INFORMATION FOR SEQ ID NO:13:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:13:

Arg Thr Arg Asp Ile Tyr Ile Ser Arg Arg
 1 5 10

(2) INFORMATION FOR SEQ ID NO:14:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:14:

Tyr Arg His Leu Leu Cys Leu Glu Arg
 1 5

(2) INFORMATION FOR SEQ ID NO:15:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:15:

Gly Thr Tyr Glu Gly Leu Leu Arg Arg Arg
 1 5 10

(2) INFORMATION FOR SEQ ID NO:16:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:16:

Leu Leu Arg Arg Asn Gin Met Gly Arg
 1 5

(2) INFORMATION FOR SEQ ID NO:17:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:17:

Phe Gln Asn Ser Thr Phe Ser Phe Arg
1 5

(2) INFORMATION FOR SEQ ID NO:18:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:18:

Leu Leu Ala Phe Leu Gln Tyr Arg Arg
1 5

(2) INFORMATION FOR SEQ ID NO:19:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2...2
- (D) OTHER INFORMATION: Xaa = Val, Leu or Met

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3...3
- (D) OTHER INFORMATION: Xaa = Tyr or Asp

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 8...8
- (D) OTHER INFORMATION: Xaa = Gln or Asn

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:19:

Xaa Xaa Xaa Xaa Xaa Xaa Ile Xaa Lys Lys
1 5 10

(2) INFORMATION FOR SEQ ID NO:20:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:20:

His Thr Leu Trp Lys Ala Gly Ile Leu Tyr Lys
 1 5 10

(B) INFORMATION FOR SEQ ID NO:21:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:21:

Ser Val Val Arg Arg Ala Phe Pro His
 1 5

(B) INFORMATION FOR SEQ ID NO:22:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:22:

Ala Phe Thr Phe Ser Pro Thr Tyr Lys
 1 5

(B) INFORMATION FOR SEQ ID NO:23:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:23:

Ser Ser Ala Gly Pro Cys Ala Leu Arg
 1 5

(B) INFORMATION FOR SEQ ID NO:24:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:24:

Cys Ala Leu Arg Phe Thr Ser Ala Arg
1 5

(2) INFORMATION FOR SEQ ID NO:25:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:25:

Trp Met Asn Ser Thr Gly Phe Thr Lys
1 5

(2) INFORMATION FOR SEQ ID NO:26:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:26:

Leu Gly Phe Gly Ala Tyr Met Ser Lys
1 5

(2) INFORMATION FOR SEQ ID NO:27:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:27:

Val Ala Gly Ala Leu Val Ala Phe Lys
1 5

(2) INFORMATION FOR SEQ ID NO:28:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

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(xi) SEQUENCE DESCRIPTION: SEQ ID NO:28:

Met Val His Gln Ala Ile Ser Pro Arg
1 5

(2) INFORMATION FOR SEQ ID NO:29:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:29:

Gln Met Val His Gln Ala Ile Ser Pro Arg
1 5 10

(2) INFORMATION FOR SEQ ID NO:30:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:30:

Thr Ile Lys Ile Gly Gly Gln Leu Lys
1 5

(2) INFORMATION FOR SEQ ID NO:31:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:31:

Thr Leu Phe Cys Ala Ser Asp Ala Lys
1 5

(2) INFORMATION FOR SEQ ID NO:32:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:32:

Thr Thr Leu Phe Cys Ala Ser Asp Ala Lys
 1 5 10

(2) INFORMATION FOR SEQ ID NO:33:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:33:

Arg Ile Val Glu Leu Leu Gly Arg Arg
 1 5

(2) INFORMATION FOR SEQ ID NO:34:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:34:

Val Thr Ile Lys Ile Gly Gly Gln Leu Lys
 1 5 10

(2) INFORMATION FOR SEQ ID NO:35:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:35:

Val Met Ile Val Trp Gln Val Asp Arg
 1 5

(2) INFORMATION FOR SEQ ID NO:36:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:36:

(2) INFORMATION FOR SEQ ID NO:37:

(a) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:37:

His Thr Gln Val Leu Phe Ile 'Ala Lys
1 5 .

(2) INFORMATION FOR SEQ ID NO:38:

(1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:38:

Thr Ile Ser Pro Ser Tyr Thr Tyr Tyr Tyr Arg
1 5 10 15 20

(2) INFORMATION FOR SEQ ID NO:39:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANGENESS: single
- (D) PHYSIOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:39:

Arg Thr Leu Thr Leu Phe Asn Val Thr Arg
1 5 10

(2) INFORMATION FOR SEQ ID NO:40:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:40:

Ile Ser Pro Ser Tyr Thr Tyr Tyr Arg
 1 5

(2) INFORMATION FOR SEQ ID NO:41:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:41:

Thr Ile Ser Pro Leu Asn Thr Ser Tyr Arg
 1 5 10

(2) INFORMATION FOR SEQ ID NO:42:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:42:

Arg Thr Leu Thr Leu Leu Ser Val Thr Arg
 1 5 10

(2) INFORMATION FOR SEQ ID NO:43:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...2
- (D) OTHER INFORMATION: Xaa = Ser or Thr

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 30...3
- (D) OTHER INFORMATION: Xaa = Asp or Glu

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:43:

Xaa Xaa Xaa Pro Xaa Xaa Leu Xaa Tyr
 1 5

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(2) INFORMATION FOR SEQ ID NO:44:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(i+) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: N...2
- (C) OTHER INFORMATION: His = Thr or Val

(A) NAME/KEY: Modified-site
(B) LOCATION: 34...3
(D) OTHER INFORMATION: Xaa == Met or Phe

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:44:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Gin Lys Lys
1 5 9 13 17 21 25

(2) INFORMATION FOR SEQ ID NO:45:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MIDDLE TYPE: peptide

(ix) EXECUTION

(A) NAME/KEY: Modified-site
(B) LOCATION: 3...3
(C) OTHER INFORMATION: Xaa = Ile or Met

(A) NAME/KEY: Modified-site
(B) LOCATION: 4...4
(C) OTHER INFORMATION: $\text{Asp} \rightarrow \text{Asp, Glu, Gly, Lys or Pro}$

(A) NAME/KFY: Modified site
(B) LOCATION: 3...5
(C) LAYER INFORMATION: No. = 1, No. = 2, No. = 3

(vi) SURVEYOR'S DESCRIPTION: SEC. ID. NO. 15.

Xaa Tyr Xaa Xaa Xaa Val Xaa Xaa Xaa Xaa
1 5 9 13

(1) INFORMATION FOR SEQ ID NO:46:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANGENESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...3

(D) OTHER INFORMATION: Xaa = Leu, Met, Ile, Val, Ser, Ala, Thr, Phe, Cys, Gly, Asp or Glu

(A) NAME/KEY: Modified-site

(B) LOCATION: 4...5

(D) OTHER INFORMATION: Xaa = Lys, Arg, Tyr, His or Phe

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:46:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

1

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(2) INFORMATION FOR SEQ ID NO:47:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...2

(D) OTHER INFORMATION: Xaa = Leu, Met, Ile, Val, Ser, Ala, Thr, Phe, Cys, Gly, Asp or Glu

(A) NAME/KEY: Modified-site

(B) LOCATION: 10...10

(D) OTHER INFORMATION: Xaa = Lys, Arg, Tyr, His or Phe

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:47:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

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(2) INFORMATION FOR SEQ ID NO:48:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...1

(D) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:48:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:49:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(1 X) FEATURE:

(A) NAME/KEY: M-dif-1-site
(B) LOCATION: 1...1
(D) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Xaa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:49:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa
1 2 3 4 5 6 7 8 9 10

(2) INFORMATION FOR SEQ ID NO:50:

(2) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANGENESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 1...1
(C) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...3
(C) OTHER INFORMATION: Raa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:50:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
1 5 13

(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site

(B) LOCATION: 3...3

(D) OTHER INFORMATION: Xaa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:51:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr

1

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(2) INFORMATION FOR SEQ ID NO:51:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...1

(D) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Asp, Glu, Ala, Ser or Thr

(ii) MOLECULE TYPE: peptide

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:52:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Xaa Xaa

1

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(2) INFORMATION FOR SEQ ID NO:52:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...1

(D) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Asp, Glu, Ala, Ser or Thr

Sub
E2

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:53:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa
 1 5 10

(2) INFORMATION FOR SEQ ID NO:54:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...2
- (D) OTHER INFORMATION: Kaa = Thr, Ser or Met

- (A) NAME/KEY: Modified-site

- (B) LOCATION: 1...3

- (D) OTHER INFORMATION: Kaa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:54:

Sub C2
 Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa
 1 5 10

(2) INFORMATION FOR SEQ ID NO:55:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(iii) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...2
- (D) OTHER INFORMATION: Kaa = Thr, Ser or Met

- (A) NAME/KEY: Modified-site

- (B) LOCATION: 1...3

- (D) OTHER INFORMATION: Kaa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:55:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr
 1 5 10

(2) INFORMATION FOR SEQ ID NO:56:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide
 (ix) FEATURE:

(A) NAME/KEY: Modified-site
 (B) LOCATION: 3...3
 (D) OTHER INFORMATION: Xaa = Thr, Ser or Met

(A) NAME/KEY: Modified-site
 (B) LOCATION: 4...4
 (D) OTHER INFORMATION: Xaa = Asp, Glu, Ala, Ser or Thr

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:56:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 1 5 10

(2) INFORMATION FOR SEQ ID NO:57:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

Sub
X2
 (ii) MOLECULE TYPE: peptide
 (ix) FEATURE:

(A) NAME/KEY: Modified-site
 (B) LOCATION: 1...1
 (D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:57:

Xaa Xaa Xaa Xaa Xaa Tyr Xaa
 1 5

(2) INFORMATION FOR SEQ ID NO:58:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids
 (B) TYPE: amino acid
 (C) STRANDEDNESS: single
 (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide
 (ix) FEATURE:

(A) NAME/KEY: Modified-site
 (B) LOCATION: 1...1
 (D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:58:

Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 1 5

(2) INFORMATION FOR SEQ ID NO:62:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 2.1.2
(D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:62:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa
1 5

(2) INFORMATION FOR SEQ ID NO:63:

(1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(23) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:63:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr
1 5

(2) INFORMATION FOR SEQ ID NO:64:

(1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) SPANNEDNESS: single
- (D) TOPOLOGY: linear

(1.1) MOLECULE TYPE: peptide

(2x) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 1...1
(D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 64:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Xaa Xaa Xaa Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:65:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRAIGHTNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...1
- (D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:65:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa Kaa
1 5 10

(C) INFORMATION FOR SEQ ID NO:66:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(2.1) MOLECULAR TYPE: peptide

(1.1) FEATURES:

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Kaa - Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:66:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa Kaa
1

(C) INFORMATION FOR SEQ ID NO:67:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(i.e.) MOLECULE TYPE: peptide

(3.3) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION:2
(C) OTHER INFORMATION: Xaa = Glu or Asp

(x1) SEQUENCE DESCRIPTION: SEQ_ID NO:67:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:68:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 3...3
(C) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:68:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa
1 5 19

(1) INFORMATION FOR SEQ ID NO:69:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(12) FEATURE:

(A) NAME/KEY: Modified-site
(P) LOCATION: 3...3
(D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:69:

Xaa Tyr
1 5 19

(2) INFORMATION FOR SEQ ID NO:70:

(2) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STEREOEDNESS: single
- (D) TOPOLOGY: linear

(11) MOLECULE TYPE: peptide

(2K) FEATURE:

(A) NAME/KEY: Modified-site
(F) LOCATION: 4...4
(D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:70:

Xaa Tyr
 1 5 10

(2) INFORMATION FOR SEQ ID NO:71:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(i.) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...1
- (D) OTHER INFORMATION: Xaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:71:

Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa Kaa Kaa Kaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:7:

(1) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(+) MOLECULE TYPE: peptide

(12) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 1...1
(C) OTHER INFORMATION: Kaa = Glu or Asp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:72:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr Xaa Xaa Xaa
1 5 19

(2) INFORMATION FOR SEQ ID NO:73:

(a) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(i.e.) MOLECULE TYPE: peptide

(13) FEATURES

(A) NAME/KEY: Modified-site
(B) LOCATION: 1...2
(D) OTHER INFORMATION: Naa = Glu or Asp

(v)) SEQUENCE DESCELETION: SEQ ID NO:73:

Kaa Kaa Kaa Kaa Kaa Kaa Kaa Kaa Tyr Kaa Kaa Kaa Kaa
1 5 10 }

(2) INFORMATION FOR SEQ ID NO:80:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 3 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Thr, Val, Met, Leu, Ile, Ser, Ala, Gly, Asn, Cys, Asp or Phe

(A) NAME/KEY: Modified-site

(B) LOCATION: 9...9

(D) OTHER INFORMATION: Xaa = Lys, Arg, Tyr or His

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:80:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:81:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...2

(D) OTHER INFORMATION: Xaa = Thr, Val, Met, Leu, Ile, Ser, Ala, Gly, Asn, Cys, Asp or Phe

(A) NAME/KEY: Modified-site

(B) LOCATION: 10...10

(D) OTHER INFORMATION: Xaa = Lys, Arg, Tyr or His

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:81:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:82:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...2

(D) OTHER INFORMATION: Xaa = Tyr, Phe or Trp

(A) NAME/KEY: Modified-site

(B) LOCATION: 3...9

(D) OTHER INFORMATION: Xaa = Phe, Ile, Trp, Met or Leu

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:82:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

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(2) INFORMATION FOR SEQ ID NO:83:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 10 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Tyr, Phe or Trp

(A) NAME/KEY: Modified-site

(B) LOCATION: 10...16

(D) OTHER INFORMATION: Xaa = Phe, Ile, Trp, Met or Leu

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:83:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa

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(2) INFORMATION FOR SEQ ID NO:84:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 8 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 1...2

(D) OTHER INFORMATION: Xaa = Thr, Met or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:84:

Xaa Xaa Xaa Xaa Xaa Xaa Tyr

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*Sub
82*

(2) INFORMATION FOR SEQ ID NO:85:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2...3
- (D) OTHER INFORMATION: Xaa = Thr, Met or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:85:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 1 5

(3) INFORMATION FOR SEQ ID NO:86:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2...2
- (D) OTHER INFORMATION: Xaa = Thr, Met or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:86:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 1 5 10

(4) INFORMATION FOR SEQ ID NO:87:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2...2
- (D) OTHER INFORMATION: Xaa = Thr, Met or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:87:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr
 1 5 10

(2) INFORMATION FOR SEQ ID NO:88:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3...3
- (D) OTHER INFORMATION: Xaa = Asp, Glu, Ala or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:88:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr

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(2) INFORMATION FOR SEQ ID NO:89:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3...3
- (D) OTHER INFORMATION: Xaa = Asp, Glu, Ala or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:89:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr

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(2) INFORMATION FOR SEQ ID NO:90:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 3...3
- (D) OTHER INFORMATION: Xaa = Asp, Glu, Ala or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:90:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Tyr

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(2) INFORMATION FOR SEQ ID NO:91:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 11 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide
(ix) FEATURE:
(A) NAME/KEY: Modified-site
(B) LOCATION: 3...3
(D) OTHER INFORMATION: Xaa = Asp, Glu, Ala or Ser

(xi) SEQUENCE DESCRIPTION: SEQ ID NO: 91:

Kaa Tyr
1 5 10

(2) INFORMATION FOR SEQ ID NO: 92:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 8...2
- (D) OTHER INFORMATION: Xaa = Leu, Met, Val, Ile, Ser, Ala, Thr, Phe, Cys, Gly or Asp

(A) NAME/KEY: Modified-site

(B) LOCATION: 8...8

(D) OTHER INFORMATION: Xaa = Lys, Tyr, Arg, His or Phe

(X)1) SEQUELLE DESTRIETION: SEQ 10 100.92.

Ada Ada Ada Ada Ada Ada Ada Ada Ada
1 5

(2) INFORMATION FOR SED ID NO: 95:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) topology: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 2...2
- (D) OTHER INFORMATION: Xaa = Leu, Met, Val, Ile, Ser, Ala,
Thr, Phe, Cys, Gly or Asp

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 9...9
- (D) OTHER INFORMATION: Xaa = Lys, Tyr, Arg, His or Phe

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:93:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:94:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide
- (ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...2
- (D) OTHER INFORMATION: Xaa = Leu, Met, Val, Ile, Ser, Ala, Thr, Phe, Cys, Gly or Asp

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 10...10
- (D) OTHER INFORMATION: Xaa = Lys, Tyr, Arg, His or Phe

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:94:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:95:

- (i) SEQUENCE CHARACTERISTICS:
- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

- (ii) MOLECULE TYPE: peptide
- (ix) FEATURE:

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 1...2
- (D) OTHER INFORMATION: Xaa = Leu, Met, Val, Ile, Ser, Ala, Thr, Phe, Cys, Gly or Asp

- (A) NAME/KEY: Modified-site
- (B) LOCATION: 11...11
- (D) OTHER INFORMATION: Xaa = Lys, Tyr, Arg, His or Phe

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:95:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:96:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 8 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(i:K) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Xaa = Leu, Met, Ile, Val, Ala, Ser,
Thr, Gly, Asn, Cys, Phe or Asp

(A) NAME/KEY: Modified-site
(B) LOCATION: 3...3
(D) OTHER INFORMATION: Xaa = Lys, Arg or His

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:96:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 3

(2) INFORMATION FOR SEQ ID NO:97:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(11) MULTIPLE TYPE: peptide

(2X) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Xaa = Leu, Met, Ile, Val, Ala, Ser,
 Thr, Gly, Asn, Cys, Phe or Asp

(A) NAME/KEY: Modified-site
(B) LOCATION: 9...9
(D) OTHER INFORMATION: Xaa = Lys, Arg or His

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:97:

Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:98:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 10 amino acids
- (B) TYPE: amino acid
- (C) STRANGENESS: single
- (D) TOPILOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Leu, Met, Ile, Val, Ala, Ser, Thr, Gly, Asn, Cys, Phe or Asp

(A) NAME/KEY: Modified-site

(B) LOCATION: 11...10

(D) OTHER INFORMATION: Xaa = Lys, Arg or His

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:98:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:99:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 11 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Leu, Met, Ile, Val, Ala, Ser, Thr, Gly, Asn, Cys, Phe or Asp

(A) NAME/KEY: Modified-site

(B) LOCATION: 11...11

(D) OTHER INFORMATION: Xaa = Lys, Arg or His

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:99:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5 10

(2) INFORMATION FOR SEQ ID NO:100:

(i) SEQUENCE CHARACTERISTICS:

(A) LENGTH: 9 amino acids

(B) TYPE: amino acid

(C) STRANDEDNESS: single

(D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site

(B) LOCATION: 2...2

(D) OTHER INFORMATION: Xaa = Tyr, Phe or Trp

(A) NAME/KEY: Modified-site

(B) LOCATION: 6...6

(D) OTHER INFORMATION: Xaa = Phe, Ile or Trp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:100:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:101:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 9 amino acids
- (B) TYPE: amino acid
- (C) SPANNEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULAR TYPE: peptide

(ix) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Kaa = Tyr, Phe or Trp

(A) NAME/KEY: Modified-site
(B) LOCATION: 9...9
(D) OTHER INFORMATION: Xaa = Phe, Ile, Leu or Trp

(x1) SEQUENCE DESCRIPTION: SEQ ID NO:101:

Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa Xaa
1 5

(2) INFORMATION FOR SEQ ID NO:102:

(i) SEQUENCE CHARACTERISTICS:
(A) LENGTH: 10 amino acids
(B) TYPE: amino acid
(C) STRANDEDNESS: single
(D) TOPOLOGY: linear

(22) MOLECULAR TYPE: peptide

(2x) FEATURE:

(A) NAME/KEY: Modified-site
(B) LOCATION: 1...2
(D) OTHER INFORMATION: Xaa = Tyr, Phe or Trp

(A) NAME/KEY: Modified-site
(B) LOCATION: 1e...10
(C) OTHER INFORMATION: Xaa = Phe, Ile, Leu or Trp

(x.) SEQUENCE DESCRIPTION: SEQ ID NO:102:

Kaa
1 5 10

(2) IMPLEMENTATION FOR SEQ ID NO:103:

(i) SEQUENCE CHARACTERISTICS:

- (A) LENGTH: 11 amino acids
- (B) TYPE: amino acid
- (C) STRANDEDNESS: single
- (D) TOPOLOGY: linear

(ii) MOLECULE TYPE: peptide

(ix) FEATURE:

SV
ER

(A) NAME/KEY: Modified-site
(B) LOCATION: 2...2
(D) OTHER INFORMATION: Xaa = Tyr, Phe or Trp

JK

(A) NAME/KEY: Modified-site
(B) LOCATION: 11...11
(D) OTHER INFORMATION: Xaa = Phe, Ile, Leu or Trp

(xi) SEQUENCE DESCRIPTION: SEQ ID NO:103:

Xaa
1 5 10